

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Exam: Function Reflections (Practice version 29)**

1. Let function  $f$  be defined by the polynomial below:

$$f(x) = -5x^4 - 6x^3 + 3x^2 + 7x + 2$$

Draw lines that match each function reflection with its polynomial:

**Reflections**

$-f(x)$  •

$f(-x)$  •

$-f(-x)$  •

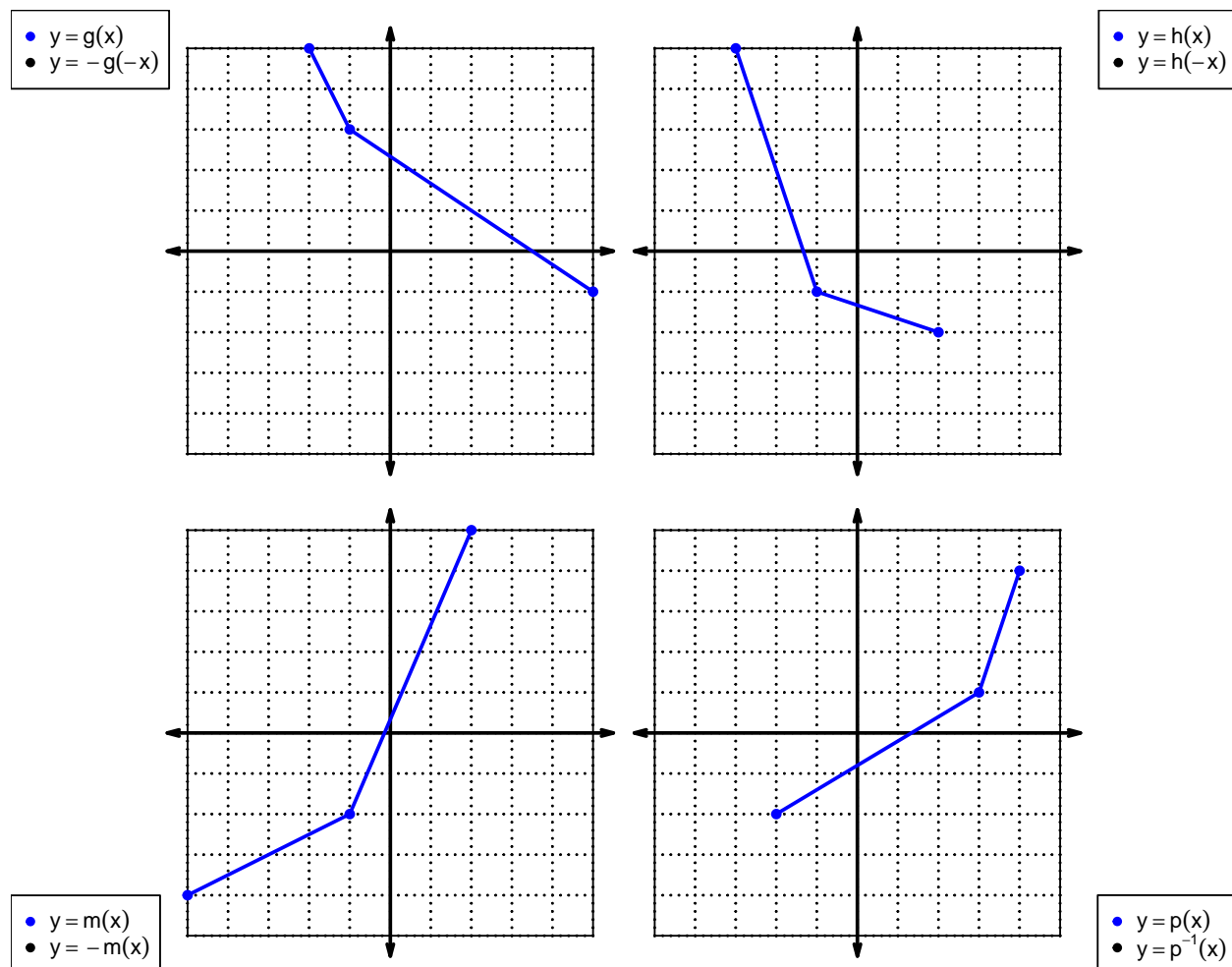
**Polynomials**

•  $5x^4 + 6x^3 - 3x^2 - 7x - 2$

•  $5x^4 - 6x^3 - 3x^2 + 7x - 2$

•  $-5x^4 + 6x^3 + 3x^2 - 7x + 2$

2. In each  $xy$  plane shown below, a function is graphed with blue. Draw the indicated reflections (as a second curve, indicated in legend) with black (or with whatever you have). The  $x$  axis is horizontal and the  $y$  axis is vertical (as typical), and the scale is equal on both axes.



## Exam: Function Reflections (Practice version 29)

For all questions on this page, the functions  $f$ ,  $g$ , and  $h$  are defined by the table below.

$x$	$f(x)$	$g(x)$	$h(x)$
1	1	7	3
2	8	6	4
3	9	2	9
4	7	9	1
5	6	3	2
6	3	4	8
7	5	5	7
8	4	1	5
9	2	8	6

3. Evaluate  $f(9)$ .

4. Evaluate  $g^{-1}(3)$ .

5. By filling more rows of the table, it is possible to make function  $f$  **even**. If that were done, what would be the value of  $f(-6)$ ?

6. By filling more rows of the table, it is possible to make function  $h$  **odd**. If that were done, what would be the value of  $h(-7)$ ?

## Exam: Function Reflections (Practice version 29)

7. A function,  $f$ , is **even** if  $f(x) = f(-x)$  for all  $x$  in the domain. A function,  $g$ , is **odd** if  $g(x) = -g(-x)$  for all  $x$  in the domain.

Let polynomial  $p$  be defined with the following equation:

$$p(x) = -x^2 - x$$

- a. Express  $p(-x)$  as a polynomial in standard form.

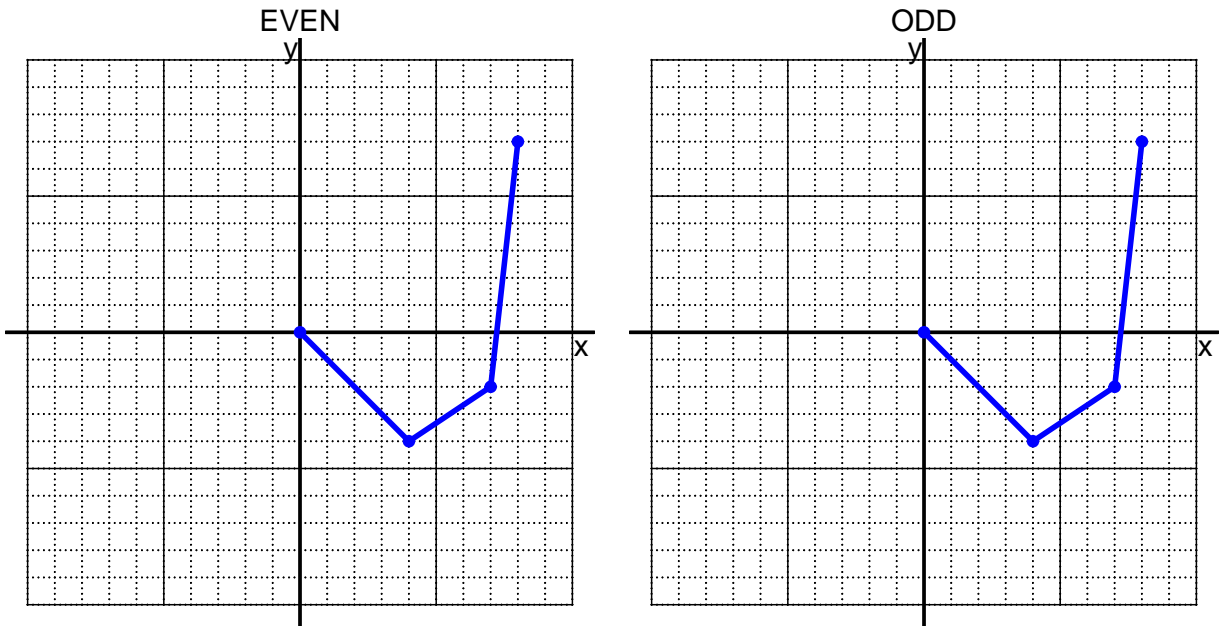
- b. Express  $-p(-x)$  as a polynomial in standard form.

- c. Is polynomial  $p$  even, odd, or neither?

- d. Explain how you know the answer to part c.

## Exam: Function Reflections (Practice version 29)

8. I have drawn half of a function. Draw the other half to make it even or odd.



9. Let function  $f$  be defined with the equation below.

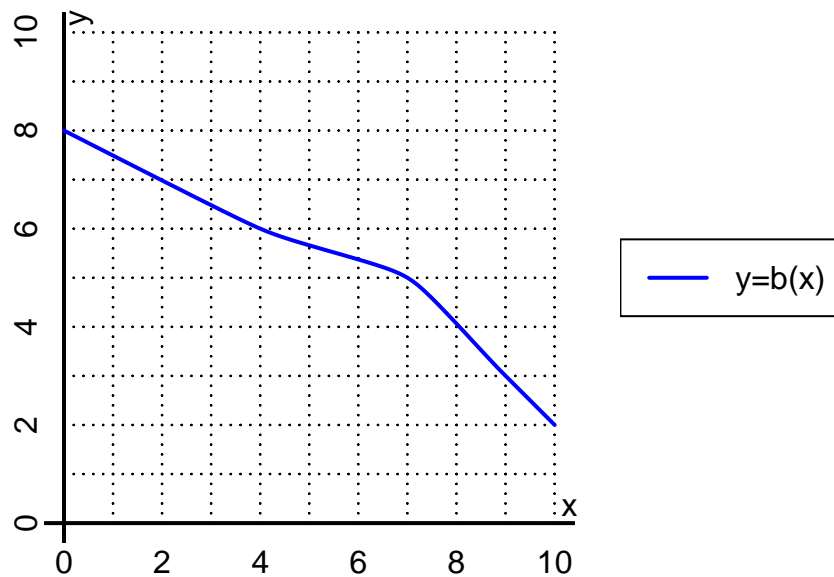
$$f(x) = 5(x - 7)$$

a. Evaluate  $f(23)$ .

b. Evaluate  $f^{-1}(40)$ .

## Exam: Function Reflections (Practice version 29)

10. The function  $b$  is represented by the curve  $y = b(x)$  graphed below.



a. Evaluate  $b(4)$ .

b. Evaluate  $b^{-1}(5)$ .

## Exam: Function Reflections (Practice version 29)

11. Function  $f$  is defined by the table below.

a. Complete the columns for  $-f(x)$  and  $f(-x)$  and  $-f(-x)$ .

$x$	$f(x)$	$-f(x)$	$f(-x)$	$-f(-x)$
-2	-8			
-1	5			
0	0			
1	-5			
2	8			

b. Is function  $f$  even, odd, or neither?

c. How do you know the answer to part b?